S
333.71
10285
N11mnr
1986
c-1

PLEASE RETURN

HELENA, MONTANA 59620

Montana Natural Resource Information

Subject and Geographic Index

(MNRI)

STATE DOCUMENTS COLLECTION

DEC 2

Guidelines

VERSION 1.0

DECEMBER, 1986

State of Montana

NRIS Natural Resource Information System

Montana State Library 1515 East Sixth Avenue Helena, Montana 59620

(406) 444-3115

APR 17 2000

MONTANA STATE LIBRARY
S 333.7110285 N11mnr 1986 c.1
The Montana natural resource information
3 0864 00056813 2

THE MONTANA NATURAL RESOURCE INFORMATION SUBJECT AND GEOGRAPHIC INDEX (MNRI)

GUIDELINES FOR ENTRY OF NEW RECORDS

Version 1.0

December, 1986

Montana Natural Resource Information System
Montana State Library
1515 East Sixth Avenue
Helena, Montana 59620

TABLE OF CONTENTS

		Page
Chapter 1.	Introduction	1
Chapter 2.	Standards for entering basic descriptive information for new records	7
Chapter 3.	Standards for entering supplemental descriptive information for special types of records	21
Chapter 4.	Suggested procedures for data entry and quality control	27

LIST OF TABLES

1.	Recommended fields of information for a complete MNRI record	8
2.	Additional fields of information for environmental statements	22
3.	Additional fields of information for automated data files	24

LIST OF FIGURES

1.	Example of completed study area map	15
2.	Map showing codes used to indicate blocks of counties	17
3.	Map showing Montana Department of Fish, Wildlife and Parks administrative regions	17
4.	Map showing drainages and drainage codes	18
5.	Template for determining minutes of latitude and longitude	22

LIST OF APPENDICES

A. Suoject Code Thesaurus
   Part 1. Hierarchical list of subject codes
   Part 2. Alphabetical list of subject codes
B. Name authority for commonly-cited state and federal agencies
C. Data entry forms for manual entry
D. Examples of completed records for each type of source
E. Blank map for entry of study area boundaries
F. dBase III plus file structure
G. Statute codes (for EIS's)

CHAPTER ONE

INTRODUCTION

PURPOSE

The primary purpose of the Montana Natural Resources Subject and Geographical Index (hereafter referred to as MNRI) is to make existing published and unpublished information on Montana's natural resources as readily available as possible to persons needing that information.

Another purpose is to reduce costs of information gathering and retrieval by creating a statewide network of cooperators all using the same (or compatible) systems.

The key to this effort is to ensure that agencies and individuals that are already entering references on their own computer systems will do so using a standardized format that all can share. If this compatibility can be achieved, each cooperator will have access to the work of many others. The results include increased access to information sources, reduced duplication of effort, and time savings by all cooperators.

MNRI is simply a standardized format for entering references to sources of information on Montana's natural resources into machine-readable files. It is not tied to any particular hardware or software and will work with nearly all computer systems. (As a service to users, the Natural Resource Information System (NRIS) has prepared menu-driven programs in dBase III plus, but it is not necessary for a user to have these programs or dBase III plus in order to be compatible with MNRI. For dBase III users, the programs are readily available, as described later.)

COVERAGE AND SCOPE

Subject Area Coverage. MNRI is designed to index sources of information on the natural resources of Montana. "Natural Resources" are defined broadly to include air, water, soils, geology, minerals, vegetation, wildlife, energy, agriculture, and forestry resources (see Appendix A for a list of major natural resource categories). For the most part, human resources, including demographics, population, socioeconomic, and historic information, are not included; these are the responsibility of other entities, including the Montana Department of Commerce Census and Economic Information Center and the Montana Historical Society. Some areas that overlap with human resources (for example, cultural sites, recreation, transportation, land use), however, are included in MNRI.

Types of Information Sources Included. The following are the primary types of information sources included in the system (these are described more fully in Chapter 2):

(1) Documents, both published and unpublished

(2) Environmental impact statements

(3) Maps, both published and unpublished

(4) Aerial imagery (including aerial photographs and satellite imagery)

(5) Bibliographies (including automated cataloging systems)

(6) Special collections of literature on a specific natural resource topic (including scientific reprint libraries and map libraries)

(7) Automated data files, including digital data and geographic information systems

(8) Other unpublished sources such as manual data files and contact persons with specific natural resource expertise

Geographic Coverage. MNRI is designed to index actual field studies covering all or a portion of the state of Montana. Although MNRI can be used without modification to include other studies conducted in other states, NRIS will only seek and add references to Montana studies in building its information base.

CONCEPTUAL DESIGN

MNRI was created following compilation with libraries of major state and federal natural resource agencies, as well as natural resource professionals at all levels of government. Three overriding goals governed development of the system: simplicity, accessibility, and compatibility with an IBM microcomputer environment.

Simplicity. The system has been kept as simple as possible to allow ready access by all users. In essence, the system is a systematic way of insuring that four key pieces of information are provided in a standardized fashion for each information source. These four key items are:

(1) A full and complete citation;

(2) A description of the major subject areas covered in the source;

(3) A detailed description of the actual geographic area of coverage within Montana; and

(4) A description of where the information can be obtained (for example, a library name and call number for a document, or a contact person's name, address and phone number for an unpublished map or data file).

Few, if any, existing systems include all these types of access points for each reference. For a detailed description of each of these items, please see Chapter Two.

Accessibility. The system has been designed to make it as easy as possible for users to locate sources of site-specific information on the natural resources of a particular portion of Montana. Since timeliness of information is often critical to decision-making, the system is also designed to get information sources to users as quickly as possible. Users may access the system over the telephone, by mail, by visiting the State Library, or by obtaining a machine-readable copy of selected references for use on their own microcomputer.

Compatibility with IBM microcomputers. In April of 1986, NRIS conducted a user needs assessment of over 300 natural resource data users in Montana. This survey revealed that IBM-compatible microcomputers are the computers most commonly used by respondents, and that dBase III was the most commonly-used data base management software. Therefore, the system has been designed using MS-DOS and dBase III on an IBM AT microcomputer (NOTE: as mentioned above, the MNRI system is nevertheless not tied to MS-DOS or dBase III. Through special arrangements, the system can be adapted to nearly any other micro-, mini-, or mainframe computer).

Microcomputer owners can receive the references to information sources in machine-readable format for use on their own microcomputers, either as a data base or a word processing document. Persons not having access to a computer, however, still have full access to the system; these users can request searches of the information base and receive the references in printed form.

OTHER FEATURES

Some other important features of the system are:

(1) All information sources, not only published sources, are included. Unpublished maps, data files, aerial imagery, the "gray literature," and special collections of scientific literature are included along with traditional published sources.

(2) The system is decentralized. Many persons and agencies can have the system in their own offices and build on it to meet their own needs. NRIS will provide centralized maintenance and quality control, and will periodically gather and redistribute new information sources added by other users.

(3) Cooperators can contribute to the system by adding new sources of information, and they can benefit in turn from the efforts of many other cooperators. A new reference will only have to be entered into the system once to be available to all users. This will reduce the effort needed to produce lists of references for specific projects.

(4) The system allows sophisticated queries and Boolean searches by many subject area and geographic descriptors. For example, it is possible to select only those sources describing land cover in Phillips County, or those sources published since 1982 de-

scribing impacts of heavy metals on fisheries populations in the lower Clark Fork River.

(5) Lists of references can be provided as an ASCII text file for use by most word processing software. This eliminates the need to retype literature citations each time a new report is created.

(6) Unlike most other systems, MNRI includes information on where the information source can be obtained--a library call number for published documents, for example, or a name and phone number for an unpublished collection of resource maps.

MNRI AND THE NRIS STATEWIDE INFORMATION BASE

The Natural Resource Information System in Helena is coordinating the development of a statewide information base using MNRI. The information base is growing in four principal ways:

(1) NRIS staff are entering new records into the system; nearly all environmental impact statements have already been indexed, and new documents that arrive at the Montana State Library are indexed before they are cataloged and shelved.

(2) Cooperators who use the system for entering their own records periodically contribute their files to NRIS, where they are appended to the other records. For example, the Department of Natural Resources is using the MNRI format to automate its energy and water resources collections; these references will be incorporated into the NRIS information base as they are entered. Also, the Department of Fish, Wildlife and Parks is using the MNRI format for its information base on fish and wildlife. Several thousand entries from these and other efforts have been merged into the NRIS information base. Cooperators have full access to all records in the "master" files maintained at NRIS.

(3) Existing automated reference files are being retrofitted for incorporation into the MNRI system. For example, an effort is under way to convert an extensive bibliography prepared by EPA for the Flathead River Basin into a compatible format. Efforts are also under way to bring automated references maintained in other formats--the many DIALOG information bases, WLN, the University of Montana's Environmental Studies Library files, the library files maintained at the Bureau of Land Management's state office--into compatiblity with MNRI.

(4) NRIS is conducting a statewide inventory of significant original unpublished data sources housed in offices of natural resource agencies statewide. Sources within Billings offices have been indexed through a cooperative agreement with the Yellowstone County Planning Office, and indexing of sources within the Bureau of Land Management and the Department of Natural Resources has begun.

Eventually, through the combination of these efforts, most all references to Montana natural resources data sources, both published and unpublished, will be included in the system.

ASSISTANCE FOR COOPERATORS

NRIS will provide technical assistance, including software support, for persons wishing to cooperate with MNRI. In some cases, financial assistance is also available for bringing significant collections of information sources into the system.

Cooperators do not have to use all of the fields in MNRI to be compatible; however, to reap the greatest benefit from cooperation, we strongly recommend using all the fields described in Chapter 2. If for some reason it is not possible to include all these fields, then the standards presented here should be followed closely for those fields that are included (especially with respect to field widths). Cooperators may add as many additional fields of information as necessary for their own needs--for example, the Department of Fish, Wildlife and Parks has added an additional field listing the fisheries water codes for streams included in the study area.

HOW CAN YOU ACCESS THE SYSTEM?

Contact the Montana Natural Resource Information System, located in the Montana State Library at 1515 East Sixth Avenue, Helena, Montana, 59620 (phone: (406)444-3115). Hours are 7:30 A.M. to 5:00 P.M. Monday through Friday. After January, 1987, users may access the system on-line using a modem.

CHAPTER TWO

STANDARDS FOR ENTERING BASIC DESCRIPTIVE INFORMATION FOR NEW RECORDS

The previous chapter emphasized the importance of standardization in ensuring compatibility and the ability to share records. This chapter, and the following, provide the standards for ensuring that compatibility.

Each source indexed using MNRI is described by including certain essential pieces of information. In computer data base terminology, each of these pieces of information is called a field. All the fields describing a particular source together comprise a record.

This chapter describes the basic descriptive fields that should be entered for each record. The following chapter describes additional fields that should be used for special types of sources.

The fields, or descriptors, described in this section generally fall within the four main categories mentioned in Chapter One: the full citation; subject area descriptors; geographic area descriptors; and location where the source can be obtained (NOTE: a few additional descriptors that don't fit in these four headings are included under other subheadings in the following discussion.)

Table 1 lists the fields that are recommended as the minimum for a complete record entry. Of these, the most essential are indicated by an asterisk. Detailed standards for each of these fields follows:

TYPE OF SOURCE

The type of source is described by a three-character field using one of the three-letter codes defined below. Examples of completed data entries for each of these types of sources are given in Appendix D.

DOC (Documents) Includes books, articles, monographs, governmental documents (exclusive of environmental documents, which are treated as a separate category), theses and dissertations, published and unpublished reports, and unpublished manuscripts.

ENV (Environmental statements) Includes Environmental Impact Statements (EIS's), Environmental Assessments (EA's), Land Management Plans, Expanded Preliminary Environmental Reviews (PER's), and any other multidisciplinary legal documents created to meet the requirements of the National or Montana Environmental Policy Acts.

MAP (Maps) Includes any published or unpublished maps.

AER (Aerial Imagery) Includes aerial photographs and satellite imagery.

TABLE 1

RECOMMENDED FIELDS OF INFORMATION FOR A COMPLETE MNRI RECORD

Field Contents	Field Length (characters)	dBASE III Field Name 1/
Type of Source	3	TYPE
The Complete Citation		
*Author	100	AUTHOR
Author's Affiliation (optional)	65	AUTH_AFFIL
*Year	4	DATE
Month and Day (optional)	20	MONTHDAY
*Title	254	TITLE
*Citation	254	CITE
Subject Area Descriptors		
Subject Codes	27	SUBCODE1
	27	SUBCODE2
	27	SUBCODE3
	27	SUBCODE4
*Keywords	254	KEYWORDS
	254	SUBJECTS
Geographic Coverage of Study Area		
States	23	STATES
*Counties	75	COUNTIES
Fish, Wildlife & Parks Regions (opt.)	6	DFWPDIS
Drainage Basin	35	BASIN
Latitude and Longitude	4	S_LAT
	4	N_LAT
	5	E_LON
	5	W_LON
Fish, Wildlife & Parks Water Codes (optional)	254	WATR
*Location Where Source Can Be Obtained	35	SHELFNOTE
Miscellaneous Descriptors		
Code	6	CODE
Coverage Dates	13	COVDATE
Date Entered	8	ENTERDATE
Person Entering Record	3	ENTERED_BY
Date Revised	8	REVIS_DATE
Person Revising Record	3	REVIS_BY

1/ See Appendix F for dBASE III Plus file structure

* Denotes most important fields

BIB (Bibliographies) Includes any bibliographies or directories of information sources, including automated cataloging systems.

AUT (Automated data files) Includes any data maintained in machine-readable format, including automated data files that contain digital or otherwise geographically referenced aerial data. Geographical Information Systems are included in this category.

COL (Collections) Includes special libraries, or special collections of books, maps, or reprints on a particular natural resource topic.

UNP (Unpublished) Includes all unpublished sources that don't fit into any of the above categories, including manual data files, file cabinets or "shoe boxes" of data, and persons who have particular expertise in a particular subject area.

THE COMPLETE CITATION

General

Use capital letters only as necessary (e.g., first letter of a title, names and proper nouns). DO NOT use all upper-case letters for any of these fields.

In general matters of style (abbreviations, capitalization, punctuation), entries should conform to the Fifth Edition of the Council for Biology Editors Style Manual (for biological topics) or the Chicago Manual of Style (for other topics) unless otherwise specified below.

1. Author

(a) General Guidelines. This field can contain up to 100 characters. Always place a period at the end of the entry (e.g., "Jones, J.K." or "U.S. Forest Service."). Don't space between initials, but be sure to put one space between names and the word "and" (e.g., "Knox, F.V., and J.K. Jones.")

(b) If Authors' Names Known. For the sole or senior author, list the last name first, followed by a comma and the first name or initial and middle name or initial. For junior authors, list first and middle names before last names. Use commas between each name (e.g., "Johnson, Ned K., P.L. Wright, and James E. Clayton."). If more than three authors' names are listed, you may either list all authors or include only the senior author's name followed by "et al." (e.g., "Pfister, Robert E. et al.") but do not use a comma. If the authors listed are really editors, compilers, or coordinators rather than actual authors, use "(ed.)" or "(eds.)" following the names (e.g., "Graul, E.J., and P. V. Blair (eds).")

(c) If Authors' Names Not Known. If names of authors are not known, list the agency sponsoring the work as the author. Use the

names as listed in the WLN Name Authority file (see Appendix B), except do not use a period after "Montana." Examples of some commonly used agency names are:

U.S. Geological Survey, Water Resources Division.

U.S. Forest Service, Gallatin National Forest.

Montana Dept. of Natural Resources and Conservation, Energy Division. [NOTE: always abbreviate "Dept." for Montana state agencies.]

Use a comma to separate each subdivision of an agency, for example, "Montana Dept. of Fish, Wildlife, and Parks, Wildlife Division, Special Projects Bureau." Most of the time it will not be necessary to list more than the agency name and one subdivision.

d. Non-written Sources. The "Author" field is used to describe the person or entity responsible for such non-written or unpublished sources as computer files, aerial imagery, maps, and manual data files. If the name or names of individuals responsible for the source are known, list their names here and include their affiliation (if known) under "Author's Affiliation" (see below). If names are not known, list the agency responsible for the source in the "Author" field. In either case, describe the "address" of the source (where it is housed, address and phone number of principal contact) in the "Citation" field, as described below.

2. Author's Affiliation (optional)

(65 characters). List institutional affiliation of senior author (if known). This will be left blank if an agency or institution is listed under the "Author" field.

3. Year

(4 characters.) For published sources, list the year of publication, if known ("n.d." if not known). If more than one year is given, or if the source spans a number of years, include only the most recent. For example, if the source is a computer data base that's updated on a quarterly basis, list the current year.

4. Month and Day (optional)

This optional field (20 characters) is used in case you wish to specify the exact date of a publication, e.g., "November 15".

5. Title

(254 characters.) For published documents, the title should be taken from the title page rather than from the cover, unless the cover gives a

more complete title. Abbreviate only if necessary to fit the title into the alloted space. Capitalize only the first word of the title and any proper nouns. Do not enclose titles in quotation marks or attempt to underline or use italics. End each title with a period.

For maps and aerial photographs, list the scale and base in parentheses following the title.

For unpublished sources or other sources that don't have a title, describe the information source as best you can within this field. For bibliographies or special collections, list the number of titles included. For unpublished sources, describe the format (e.g., text, tables, field data entry forms, cards, unwritten).

Some examples of titles for unpublished sources follow:

"Unpublished tables listing daily streamflow at three stations on the Marias River."

"Unpublished false-color IR aerial photography of the study area for the Townsend-Garrision 500 kilovolt transmission line (Scale = 1:48,000)."

"Unpublished map of winter and spring sharp-tailed grouse distribution in the study area for the Decker coal mine (Base = USGS Spring Gulch quadrangle; scale = 1:24,000)."

[Referring to a person who is an expert in a particular area] "Source of expert information on fisheries of Montana."

"Collection of c. 2,500 titles (primarily journal articles) on weeds and herbicides."

NOTE: Always present the scale of a map or aerial photograph as a ratio, e.g., "1:125,000," not "1/2 inch = 1 mile." If the scale of a map is not given, or if the scale has been altered through reduction or enlargement, use the following steps to calculate the ratio:

(a) Determine a ratio of miles to inches (this can be easily done using a ruler; sometimes it's given on the map itself) as MI/IN (for example, 6.7 miles to 1.25 inches)

(b) Calculate the scale as SCALE = 1:X (rounded to the nearest 500) where

$$X = (MI \times 62{,}500) / IN$$

(In the example above, this works out to 1: (6.7 X 62,500) / 1.25, or 1:335,000.)

6. Citation

(254 characters.) Always end each citation with a period.

For books and documents, list the place of publication, publisher (if different from the author), number of volumes (if more than one), and number of pages. Additional optional descriptors may include "illus.", "bib.", or "index". If maps are present within a document, you may wish to describe them in the abstract (see page 21). Include International Standard Book Number (ISBN) or Library of Congress Card Number (LCCN) if known. For example,

"Boston: Houghton Mifflin. 2 vols., 123 + 144 pp. ISBN 0-920656-42-0."

"Fort Collins, CO.: U.S. Fish and Wildlife Service, OBS-WELUT 78/32. 24 pp."

For journal or periodical articles, spell out the journal name in full. Do not abbreviate unless necessary to fit within the 254-character limit. (e.g., Journal of Range Management 53(2):116-118", not "Jour. Range Mgmt." or "J. Rng. Manage".

For references pulled from symposia proceedings, review books, or other compilations, the entire citation to the compilation will have to be squeezed into the citation field (e.g., "Pages 314-458 In G. B. Books, D. T. Trimball, and A. H. Hutton (eds.), Proc. of a symp. on management of natural resources data. U.S. Forest Service Gen. Tech. Rep. RM-34/78.")

For unpublished sources such as maps, aerial photographs, and computer files, list the location (city and state) where the source is located, as well as the name (if not included under "Author"), address, and phone of the primary contact person or agency. For example:

"Helena, Montana: Montana Dept. of Highways. Contact Harvey Hargett, MDH, 2701 Prospect Ave., Helena, 444-2314."

"Denver, Colorado: U.S. Geological Survey. Contact James Mason, USGS, Box 25046, Federal Center, Denver, (303)345-5464."

For automated bibliographies or collections, describe the hardware and software used. For example: "Bozeman, Montana: Montana Dept. of Fish, Wildlife and Parks. Contact Joyce Biggins, DFWP Research lab, 586-3233. Uses Lotus 123 on a Leading Edge Model D microcomputer."

For maps, include a description of map dimensions in inches, (e.g., "44 x 56"), minimum resolution in acres (e.g., "Min. Res.=10 acres").

SUBJECT AREA CODES AND DESCRIPTOR CODES

1. Subject Codes

(Four fields, 27 characters per field.) The list of subject codes used by MNRI is really an abbreviated thesaurus of the most important key words that are used to describe the general subject content of the source. Instead of spelling out entire key words, use three-letter hierarchical subject codes to describe the subject content of the technical material in the source.

A list of the current subject codes is presented in Appendix A. As the need arises, more specific subject codes will be added to this list, but no codes will be removed. Each three-letter code is unique. Cooperators will be provided with a periodic update of the subject code list.

The subject code system employed is a hierarchical one. The first-order subject codes are the most general, and can be broken down into several more specific second-order subject codes. Likewise, third-order codes are subsets of second-order subjects, and fourth-order codes are subsets of third-order subjects. This allows one to query the information base either for very general or for very specific subject categories. Even if the subject area of a source is very specific, the corresponding general subject codes must also be included. For example, if TUR[bidity] is given as a fourth-order subject code, the more general headings WAT[er resources], QUA[ity], and PHY[sical aspects of quality] must also be entered. ALL SUBJECT CODES MUST BE SEPARATED BY PERIODS.

First-order subject codes are of two types. First, they include the most general natural resource categories (e.g., geology, soils, water resources). Second, they include some general descriptors that can be used in conjunction with any of the other first order categories--for example, policy, regulation, supply, statistics, education, classification, management.

In two cases, several different first-order subject codes correspond to the same set of second- through fourth-order codes:

(1) For water resources, WAT. may be used to indicate general surface- and groundwater studies, SUR. may be used if the studies pertain only to surface water, and GRO. can be used if the sources deal only with groundwater. These are all first-order headings. Only the one that best describes the subject area coverage of the source should be entered.

(2) For biological studies, BIO. can be used to indicate general biological studies, TER. or AQU. can be used to indicate terrestrial or aquatic studies, respectively, and VEG., FIS., and WIL. can be used to indicate vegetation, fisheries, and wildlife studies, respectively. Several of these may be used simultaneously; for example, a study that deals with aquatic vegetation and fisheries would be represented by "AQU.VEG.FIS.".

Each field can contain up to seven three-letter subject codes separated by periods; e.g., GEO.SOI.MET.ENE.IMP.WAT.TER. USE ALL UPPERCASE LETTERS FOR SUBJECT CODES.

The first field should contain only first-order subject codes, the second field only second-order, etc. However, a mixture of up to seven different codes can be entered in each field. This allows fairly detailed description of subject area coverage even for sources that contain many different subjects. For example, a source dealing with policy implications of the impacts of weather modification on snowpack, vegetation, soil erosion, and turbidity could be described as follows:

First Order:	MET.SUR.SOI.VEG.IMP.PLC.
Second Order:	SNO.WMO.QUA.ERO.POL.
Third Order:	PHY.
Fourth Order:	TUR.

When the data base is queried, this source would be retrieved if a search were made for any one of these 13 subject codes.

Only codes that are listed in Appendix A may be used; again, codes must only be entered in the appropriate level (that is, second-order subject codes can only be entered in the second subject field.

Environmental impact statements are a special case with respect to subject analysis, in that all or nearly all natural resource categories must by law be considered. Therefore, it is not necessary to list each subject included; the code "EIS" implies that all major subject areas are included in the document. Likewise, the code "GEN" refers to general sources covering a wide variety of resource topics. However, in the case of EIS's, additional codes must be listed to indicate the type of project or action that's being evaluated by the EIS.

2. Keywords

(2 fields, 254 characters each.) These two fields are intended primarily to (1) provide more information about the source if the title inadequately describes what's covered in the source, and (2) to provide a place to list key words that have already been extracted for the source (as is done for articles in many scientific journals). Key words may include geographic terms as well as subject terms. Do not list key words that are included in the title or in any of the subject codes. Capitalize only proper nouns and place names. Separate keywords by periods.

The second keyword field is intended primarily for lists of plant or animal species covered in the source. If possible, include the common name followed by the Latin name in parentheses (do not underline Latin names). This field can also be used to provide a continuation of the keywords in the first keyword field, comments or remarks or additional descriptive information.

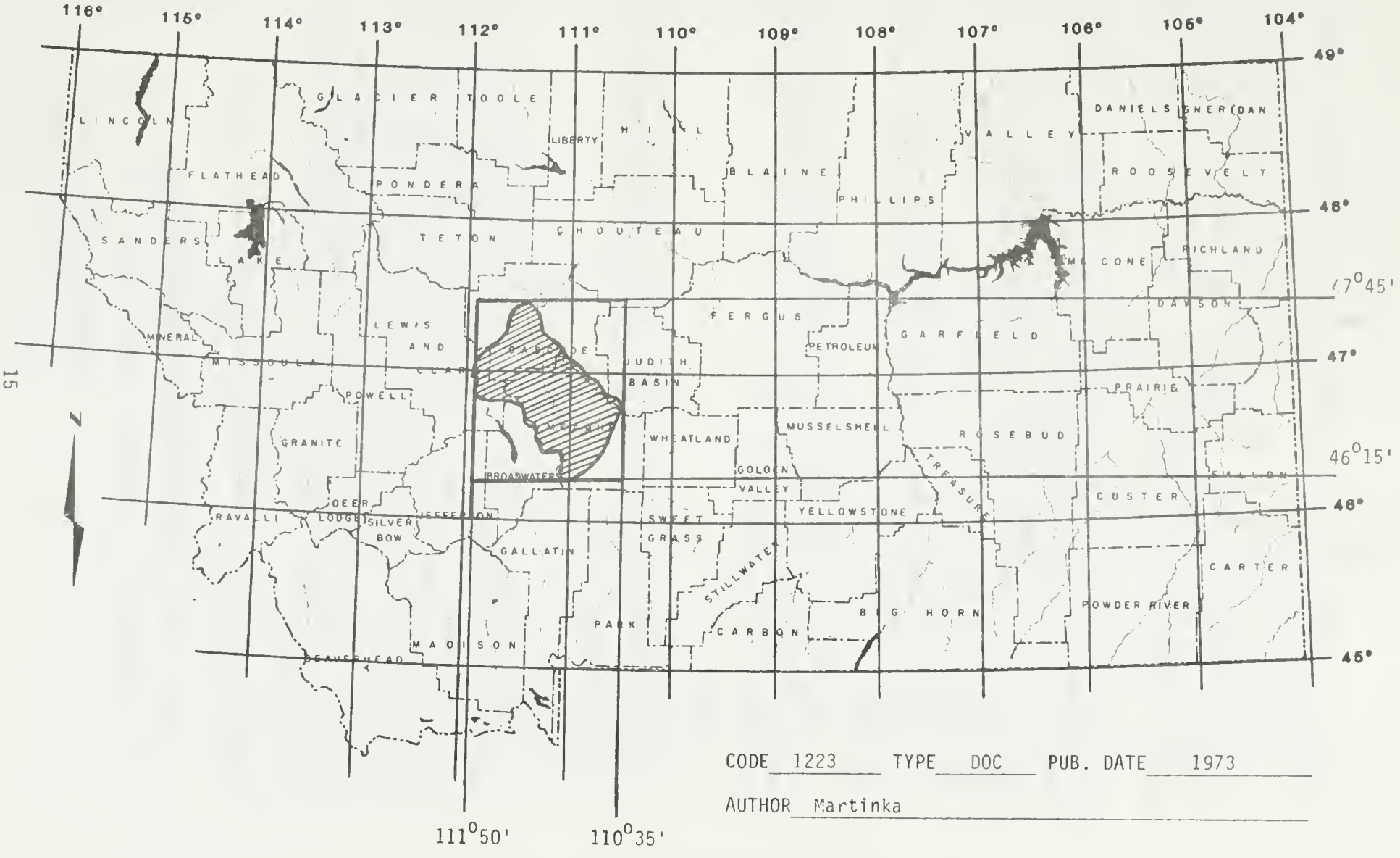
GEOGRAPHIC COVERAGE OF THE STUDY AREA

Use of Maps to Aid Analysis of Geographic Coverage

Perhaps the most important feature of the MNRI system is its provision for several geographical access points. This allows users an enormous degree of flexibility in performing queries for a specific portion of the state. It does, however, require some extra effort on the part of the person entering the record. The amount of effort required can be reduced to a minimum by first plotting the study area boundaries on a standardized base map.

The map developed for this system, together with as example of how a

Figure 1. Example of completed study area map. Note designation of "least rectangle" of latitude and longitude.



CODE 1223 TYPE DOC PUB. DATE 1973

AUTHOR Martinka

study area boundary can be depicted, is shown in figure 1 (a clean copy of the map for your use can be found in Appendix E).

The area of coverage of each source indexed by NRIS is depicted on a separate copy of this map. These maps are kept on file at NRIS. They form a valuable part of the information base, in that the exact area of coverage of a source can be determined without having to go back to the source. Cooperators are strongly urged to keep a similar set of maps and to make copies of them available to NRIS.

The area of coverage should be drawn with care, and should conform as precisely as possible to any coverage maps included with the source. In many cases, the title of a publication will give a very misleading picture of the actual area of coverage; for this reason, the area of coverage should always be derived directly from maps or descriptions found within the body of the source. Study area mapping is not necessary, of course, for statewide studies.

On each of these working maps, write the code number assigned, the last name of the senior author (or abbreviation of agency), and the date published or created.

From these coverage maps, a detailed description of the coverage of the source in terms of counties and latitude and longitude can be easily derived. Additional maps are necessary for certain other geographic descriptors, as described below.

1. States

(23 characters.) List standard two-letter postal codes for Montana or any of the seven states or provinces adjoining Montana which are included in the source. Use periods to separate codes (e.g., MT.ID.WY.SD.ND.SA.AL.BC).

2. Counties

(75 characters.) Enter up to fifteen four-letter codes separated by periods. For individual counties, simply enter the first four letters of the county name. This gives a unique identifier for each Montana county. (NOTE: Chouteau County is mispelled on many maps.) For blocks of counties, enter four-digit codes (NOWE, NOCE, NOEA, SOWE, SOCE, SOEA) as shown in Figure 2. For statewide studies, use the code STAT. This will allow even the most oddly-shaped study area to be entered within the 75 characters alloted for this field. For example, the very large study area for Alden's "Physiography and Glacial Geology of Western Montana" can be indicated by:

NOWE.SOWE.TOOL.LIBE.HILL.CHOU.CASC.JUDI.FERG.MEAG.WHEA.PARK.SWEE.STIL.CARB.

3. Dept. of Fish, Wildlife and Parks Regions (optional)

(6 characters). This field, used primarily for fish and wildlife

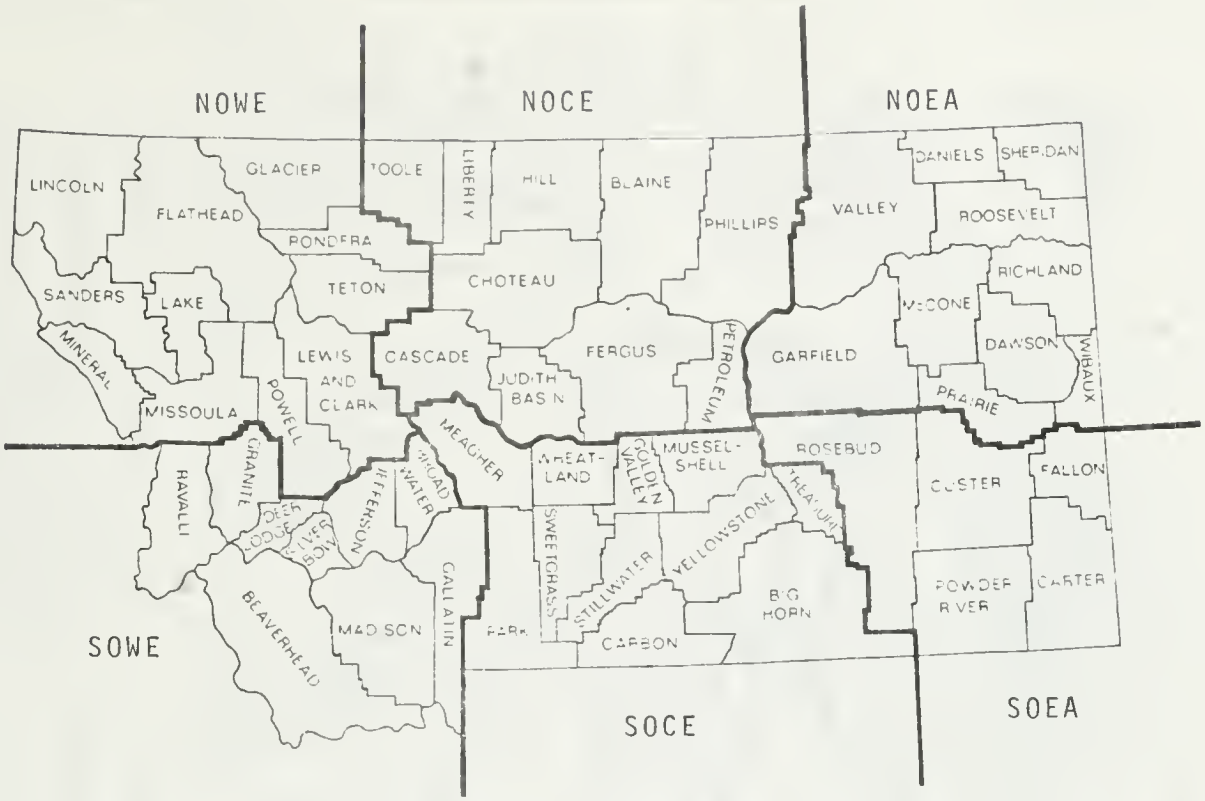
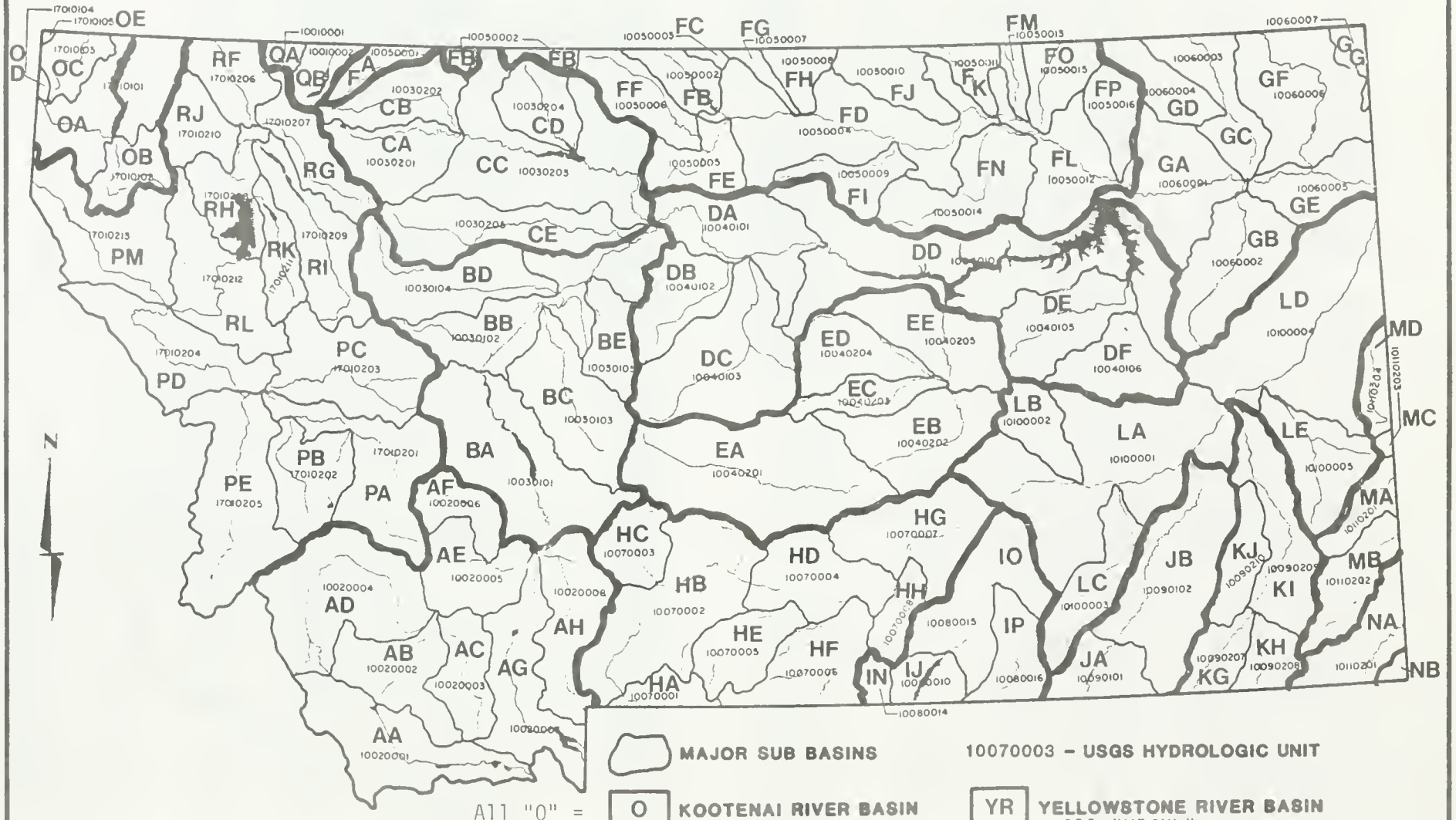


Figure 2. Map showing codes used to indicate blocks of counties.

Figure 3. Map showing Montana Department of Fish, Wildlife and Parks administrative regions.

Figure 4. Map showing drainages and drainage codes.


MAJOR SUB BASINS
10070003 – USGS HYDROLOGIC UNIT
All "O" = O KOOTENAI RIVER BASIN
All "P" & "R" = PR CLARK FORK BASIN
All "ABCDEFG" = UM MISSOURI RIVER BASIN
YR YELLOWSTONE RIVER BASIN
All "HIJKL"
MN LITTLE MISSOURI RIVER BASIN
All "M" & "N"
Q ST. MARY RIVER BASIN
All "Q"

studies, indicates which of the 7 Montana Dept. of Fish, Wildlife and Parks administrative regions are included (see Figure 3). Enter the number(s) of the region(s) covered by the source (e.g. 357 for a study covering regions 3, 5 and 7); enter "9" for statewide studies.

4. Drainage Basin

(35 characters.) This field is for use primarily with water resources or fisheries data sources. Enter the one- or two-letter codes corresponding to the USGS Hydrologic Units covered (see Figure 4). Enter codes in upper case and separate all codes by periods. For example, "OC." indicates the Yaak River Drainage, "O." indicates the entire Kootenai River drainage (including the Yaak River), and "O.RJ." indicates the Kootenai River drainage plus the Stillwater River drainage of the Flathead River. (NOTE: for studies encompassing the entire Missouri River basin, the code "UM." can be used in place of "A.B.C.D.E.F.G." to save space. Likewise, for studies encompassing the entire Yellowstone River basin, the code "YR." can be used in place of "H.I.J.K.L.") For studies that cover large areas, use the combination of the least number of one- and two-letter codes that describe the area of coverage. For example, Alden's study area mentioned above would be "A.O.P.R.Q.B.C.FA.FB.FF.FE.HC.HA.HB." For statewide studies, enter "STAT.".

5. Latitude and Longitude

Four fields (two of four characters each for latitude, and two of five characters each for longitude) are included to depict the "least rectangle" surrounding the area of coverage--that is, the northernmost and southernmost latitude and the westernmost and easternmost longitude of the study area. This allows queries to be made using latitude and longitude or township and range-based search coordinates.

In each field, the first characters are degrees (e.g., 48 degrees north latitude, 113 degrees west longitude) and the last two characters are minutes. Try to estimate latitude and longitude to the nearest five minutes from the coverage maps; the template shown in Figure 5, if copied onto mylar or other transparent material, greatly improves the ease and accuracy of this task.

As an example, a statewide study would be described as follows:

Southernmost latitude:	4423
Northernmost latitude:	4900
Easternmost longitude:	10400
Westernmost longitude:	11603

Even though an area of coverage may extend far beyond the boundaries of Montana, do not extend the least rectangle beyond the boundaries of the state.

6. Fish, Wildlife and Parks Water Codes (optional)

(254 characters). For fisheries and some water resources studies, it

may be desired to enter the six-digit water codes (e.g., "06-2311") for all water bodies investigated. This allows for very specific queries to detailed information for a particular water body.

LOCATION WHERE SOURCE CAN BE OBTAINED

(35 characters). This field tells where the information source can be obtained. Standard codes are to be used for libraries and agency offices; other locations will be spelled out. The Montana State Library (abbreviated MSL) shelf holdings will be the highest priority; other libraries will be second priority (use standard WLN abbreviations for source libraries). List the call number following the library code. (This field may be left blank if a contact person or location is provided elsewhere in the record.)

MISCELLANEOUS DESCRIPTORS

1. Code

(6 characters.) This should be a unique number for each source indexed (letters are not allowed). New records appended to the NRIS system will be assigned unique numbers; numbers will be added sequentially as the data base grows.

It is essential to ensure that (1) each entry is assigned a unique number; (2) no two entries have the same code number; (3) no numbers are skipped; and (4) once assigned, code numbers are never changed. This will require coordination among all persons who are entering records into the system. Use of an entry log can help with this.

2. Coverage Dates

(13 characters.) In those cases where the dates of data coverage differ from the publication date entered above, describe these dates in this field using the format MM/YY-MM/YY. For ongoing studies, list starting date, plus "ongoing" (e.g., "11/65-ongoing").

3. Record Entry Details

Four fields are provided to enter details about entry or revision of records: two fields (three characters each) are for the initials of the person entering or revising the entry, respectively; two fields (8 characters each) are used to record the dates the records were entered and revised, respectively. Use the format MM/DD/YY for dates.

CHAPTER THREE

STANDARDS FOR ENTERING SUPPLEMENTAL DESCRIPTIVE INFORMATION FOR SPECIAL TYPES OF RECORDS

Certain types of sources (for example, computer data bases) require more detailed description than is possible using the fields described in Chapter 2. In this chapter, standards are presented for entering this detailed information.

ABSTRACTS (optional)

Some persons may wish to include an abstract of the source or additional descriptive notes that won't fit in the fields provided for in Chapter 2. This information may be included in abstract fields. Up to five fields may be used; the maximum number of characters in each field is 254.

For maps, use the abstract fields to describe the map legend and lists of mapping units.

For environmental statements (and certain documents, if desired), the first abstract field (and in some cases the second as well) is used to list the subject codes (as listed in Appendix A), additional subject descriptors, and the scale of any maps contained in the document that include useful or original information on natural resources. Number each map in sequence. Use a space between each map entry, and follow each subject code with a period. If the subject codes don't provide enough detail, add lower case words after the subject codes as needed to adequately describe the subject of the map. End each entry with the scale of the map (unless all maps are the same scale, in which case the entry would begin "All maps [give scale]"). For example, the entry for an EIS containing three maps, one on general soil series, one of vegetation types, and one on sage grouse distribution, would be as follows:

All maps 1:500,000 unless otherwise noted.
(1)SOI.series. (2)TER.COM.potential native vegetation.
(3)TER.FAU.BIR.sage grouse.1:250,000.

If there is not sufficient space for all maps in one field, continue entry into the second field.

NOTE: material in abstract should not duplicate descriptions already entered in other fields.

ADDITIONAL FIELDS FOR ENVIRONMENTAL STATEMENTS

Table 2 summarizes the additional fields used for environmental statements. A more detailed description of each follows. (NOTE: NRIS has already indexed nearly all Montana EIS's).

TABLE 2

RECOMMENDED FIELDS OF INFORMATION FOR ENVIRONMENTAL STATEMENTS

Field Contents	Field Length (characters)	dBASE III Field Name 1/
Statute(s) under which document was produced	45	STATUTE
Project Type	20	PROJ_TYPE
Proposer	50	PROPOSER
Date of PER (if any)	5	PER_DATE
Date of Draft (if any)	5	DRAFT_DATE
Date of Final (if any)	5	FINAL_DATE

1/ See Appendix F for DBASE III Plus file structure.

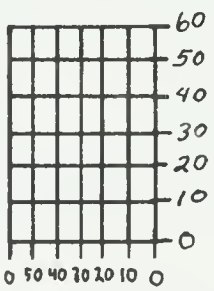


Figure 5. Template for determining minutes of latitude and longitude from map shown in Figure 1.

1. Statute

(45 characters.) Describe the law under which the assessment was made. Most state EIS's were made under MEPA, most federal under NEPA (use abbreviations). Other key laws and their abbreviations are listed in Appendix G.

2. Project Type

(20 characters.) Describe the types of project or action triggering the assessment (forest planning, coal mine, transmission line, etc.).

3. Proposer

(50 characters.) List name of entity proposing the action triggering the assessment.

4. Date of PER

(5 characters.) MM/YY Preliminary Environmental Review (PER) was issued (if any).

5. Date of Draft EIS

(5 characters.) MM/YY draft EIS issued (if any).

6. Date of Final EIS

(5 characters.) MM/YY final EIS issued (if any).

ADDITIONAL FIELDS FOR AUTOMATED DATA FILES

Automated (that is, computerized) data files are a special type of source that requires more detailed description. For these sources, the additional descriptors listed in Table 3 are used.

TABLE 3

ADDITIONAL FIELDS OF INFORMATION FOR AUTOMATED DATA FILES

Field Contents	Field Length (characters)	dBASE III Field Name 1/
Acronym. List standard acronym (if any).	20	ACRONYM
Purpose. Describe in general terms the purpose of the data file.	55	PURPOSE
Structure. List two-digit code for data structure (SS = sorted sequential; IS = indexed sequential, RE = relational)	2	STRUCTURE
Contact. List name, address, and telephone number of primary contact person.	75	CONTACT
Status. O = operational, D = under M = under modification.	1	STATUS
Availability. Describe availablity to users outside the agency: U = unlimited, L = limited, C = confidential or proprietary.	I	AVAIL
On-line access? Is online access available? Y/N.	1	ONLINE
Interactive? Can data be accessed interactively? Y/N.	I	INTERACT
PC Access? Can data be transferred to a diskette readable by a microcomputer? Y/N.	1	PC_ACCESS
End-user Operated? Can system be operated by end user? Y/N.	1	END_USER
Data Base? Is the file a data base? Y/N.	1	DATA_BASE
Output. Describe output media: P = printout, M = magnetic tape, D = diskette.	3	OUTPUT
Storage Media. M = magnetic tape, H = hard disk, D = diskette.	3	STORAGE
Size of Data File (in megabytes).	6	MEGABYTES
Hardware. List makes and models of the computer(s) on which the data base resides.	40	HARDWARE
Location. Give address where hardware resides.	55	LOCATION

Table 3 (continued)

Field Contents	Field Length (characters)	dBASE III Field Name 1/
Operating System. Describe operating system.	20	OPER_SYST
Language. List the software language(s) used.	35	LANGUAGE
Data Base Management System (if any).	20	DBMS
Documentation. Give MNRI code number of documentation entry, or 999999 if none.	6	DOCUM
Other Agencies Who Access System (if any).	35	OTHERS
Year Implemented (last two digits only).	2	IMP_YR
Date of Last Modification (MMYY)	4	LAST_MOD
Frequency of Input. D = daily, W = weekly, M = monthly, A = annually, Y = less than once every 2 years	1	IN_FREQ
Frequency of Output (as above).	1	OUT_FREQ
Sources of Data in System.	254	SOURCES
Primary Users of System.	45	USERS
Will the agency share data with outside users? Y/N?	1	WILL SHARE
Conditions for access. (lease, exchange, subscription fee, etc.; costs for above)	60	CONDITION
How can data be transferred to other users? (if through an online communications link, include modem type, software, and speed.)	60	TRANSFER
Support. List support organization and type of support provided.	40	SUPPORT
Minimum Memory Required for Operation of Software (kilobytes).	6	MIN_MEM
Capacity of System (including main memory and 50 disk storage).	50	CAPACITY
Maximum No. of Simultaneous Users.	2	NO_USERS
Federal Repository(ies) to Which Data are Supplied (e.g., STORET, WATSTORE).	25	FED_REPOS

Table 3 (continued)

Field Contents	Field Length (characters)	dBASE III Field Name 1/
Comments.	254	COMMENTS
ADDITIONAL FIELDS USED ONLY FOR DIGITAL DATA FILES:		
What Software is used for Digitizing? Overlaying?	35	SOFTWARE
Coordinate System (Latitude/Longitude, UTM, etc.)	30	COORD
Spatial Data Type (P = point, L = line, P = polygon, G = grid-cell.	4	SPATIAL
Minimum Level to Which Data are Aggregated (acres).	4	AGGREG
Peripheral Devices (such as digitizers, plotters)	75	PERIPH
Output Products Available (such as statistical summaries, maps, etc. Indicate scale(s) at which maps can be printed).	55	OUT_PROD
Does the System have Overlay Capacity? Y/N.	1	OVERLAY
Layers. List and describe each overlay in the system, and indicate the scale and source of input data.	254	LAYERS

CHAPTER FOUR

SUGGESTED PROCEDURES FOR DATA ENTRY AND QUALITY CONTROL

DUPLICATE CODES

The code number for each record must be unique; therefore, it is necessary to check for duplication before entering the code number for a new record.

DUPLICATE RECORDS

Each source should only be entered into MNRI once. Once it's been entered, it becomes available to all cooperators. Cooperators should therefore check each source for duplication before entering a new record. Lists of titles, by subject area, of records already on the NRIS "master" information base can be obtained from NRIS upon request.

ENTRY LOG

Each person entering records should enter the following information into a log book:

Date entered
Initials of person entering data
Code for which type of data (DOC, ENV, AER, BIB, etc.)
Starting time for data entry
Ending time for data entry
Entry code numbers
Initials of person approving entry and entry code numbers and date approved
Date merged with master data base

QUALITY CONTROL

Before entries are given permanent numbers and merged with the full data base, they should be reviewed and approved. Incomplete entries should not be merged with the master data base.

BACKUP PROCEDURES

Daily backups of working files and weekly backups of master files should be routinely made.

MARKING OF INDEXED DOCUMENTS

The code number of each document in an agency's collection that's been indexed should be marked in the upper right-hand corner of the document's title page.

APPENDICES

APPENDIX A

PART 1. HIERARCHICAL LIST OF SUBJECT CODES

LAN Land lines
- PLS Public Land Survey (Township and Range)
- LAT Latitude and longitude
- COU County lines
- UTM Universal Transmercator
- OWN Ownership

TOP Topography
- REL Relief
- SLO Slope
- ASP Aspect
- FRM Landforms

AER Aerial imagery
- PHO Photography
- SAT Satellite imagery

MET Meteorology and climatology
- TEM Temperature
- PRE Precipitation
  - RAI Rain
  - SNO Snow
- SNP Snowpack
- SUN Insolation
- WIN Wind
- EVA Evapotranspiration and evaporation
- WMO Weather modification

AIR Air Quality

HDR Hydrology

WAT Water resources (Collective heading for SUR and GRO)
SUR Surface water
GRO Groundwater

- QNT Quantity (streamflow)
- QUA Quality
  - Biological (use subheadings under BIO)
  - CHE Chemical
    - ORG Organics
    - ION Common Ions (including pH and specific conduct.)
    - NUT Nutrients
    - MTL Metals
    - DOB DO/BOD
    - RAD Radioactivity
  - PHY Physical
    - TMP Temperature
    - SED Sediment
    - TUR Turbidity
    - COL Color
    - ODO Odor
- WUS Water use
  - CNS Consumptive
  - NON Non-consumptive
  - IRR Irrigation
  - PUB Public Supply (municipal)
  - RUR Rural domestic
  - IND Industrial
  - LIV Livestock
  - ISF Instream flow
  - RSE Reservoir evaporation
  - MNI Mining
  - INT Inter-basin transfer
  - WEL Wells
    - FLW Flowing wells
  - SPR Springs
  - DRA Drains
  - GHP Groundwater heat pumps
  - EVP Evaporation
  - RSV Reservations
  - WRI Water rights
    - RWR Reserved water rights
- AQF Aquifer

SOI Soils
- CHM Chemical characteristics
  - SSS Saline/sodic soils
- PHC Physical characteristics
- ERO Erosion
- GNS Genesis
- SRV Survey

GEO Geology (other than minerals)
- GCH Geochemistry
- GMO Geomorphology
- GLA Glacial
- SDM Sedimentology
- SRF Surface
- SSF Subsurface
- FEA Unique features

MIN Minerals (other than energy resources)
- COP Copper
- SIL Silver
- CLY Clay
- BEN Bentonite
- URA Uranium
- GOL Gold
- PLA Platinum
- SAN Sand
- GRV Gravel
- CUT Open cut

PAL Paleontology

BIO Biological resources (collective heading for AQU and TER) (NOTE: any of the following five first-order headings can be used in place of BIO if you wish to be more specific)

AQU Aquatic ecology

TER Terrestrial ecology

VEG Vegetation (indicates vegetation studies = "1.TER.2.COM")

FIS Fisheries (indicates fisheries studies="I.AQU.2.FAU.3.FSH")

WIL Wildlife (wildlife studies = "1.TER.2.FAU.3.BIR.MAM.REP.")
- ECO Ecosystems
- FLO Flora
  - VIR Viruses
  - BAC Bacteria
  - PHT Phytoplankton
  - PER Periphyton
  - MAC Macrophyton
  - FUN Fungi
  - VAS Vascular
- FAU Fauna
  - MOL Molluscs
  - INS Insects
  - ARH Arachnids
  - CRS Crustaceans
  - ART Other arthropods
  - INV Other intertebrates (Microinvertebrates, Macroinvertebrates)
  - FSH Fishes
  - AMP Amphibians
  - BIR Birds
  - MAM Mammals
- COM Communities
  - PLT Palustrine
  - LAC Lacustrine
  - RIV Riverine or riparian
  - FRS Forest
  - SAV Savannah
  - GRS Grassland
  - SHR Shrubland
  - DES Desert
  - ALP Alpine
  - SBT Subterranean
  - MEA Meadow
  - WET Wetlands

NOTE: The following third-order descriptive terms can be used in conjunction with any subject codes under BIO:
- BEH Behavior
- FOO Food habits
- END Endangered or threatened species
- LIF Life history
- TAX Taxonomy
- HAB Habitat
- PRO Productivity
- HAR Harvest
- MOR Mortality
- TOX Toxins
- TEC Techniques
- MOV Movements or migrations
- REP Reproduction
- DIS Distribution
- POP Population ecology
- LIS Lists of species or communities
- DIV Diversity
- ABU Abundance
- PAT Pathology and disease
- HUN Hunting

AGR Agriculture
- CRO Crop production
- GRA Grazing
- FOR Forestry
- WEE Weeds
- PES Pesticides
- LVS Livestock

COV Land cover (Similar to VEG and TER.COM but incl. land uses)

HAZ Hazards (Environmental hazards and/or constraints)
- SEI Seismic risk
- LSL Landslides and land movement
- FLO Flooding

FIR Fire

ENE Energy
- OIL Petroleum
  - CRU Crude oil
  - PPR Petroleum products
- GAS Natural gas
- COA Coal
  - STM Strip mining
  - SYN Synfuels
  - SLU Coal slurry
- ELE Electric power (collective term = THE.HYD.)
- HYD Hydroelectric
  - SSH Small-scale hydro

THE Thermoelectric power
CFP Coal-fired power plants
MHD Magnetohydrodynamics
COG Cogeneration
TRA Transmission facilities
PIP Pipelines
SIT Siting studies
REN Renewable (collective term = "1.ENE.2.BMS.GTH.SOL.WIN.HYD.")
BMS Biomass Energy
HCB Hydrocarbon fuels from biomass
ALC Alcohol fuels
SWS Solid wastes
WDF Wood fuel
GTH Geothermal Energy
SOL Solar Energy
WND Wind Energy
ENC Energy Conservation
IDS Industrial
CMM Commercial
IST Institutional
RES Residential

USE Land use and management
EXC Land exchanges
SPE Specially managed areas
WLD Wilderness
PAR Parks
WRF Wildlife refuges
WSR Wild and scenic rivers
RNA Research natural areas
NAT Nature preserves
WTS Watersheds
SUB Subdivision
ROW Rights-of-way

HER Heritage
TOU Protection tools
PRT Protection organization
MAN Management techniques

IMP Impact
POL Pollution
WAS Hazardous wastes
NOI Noise

MIT Mitigation
RCL Reclamation and revegetation

TRN Transportation
HWY Highway
ARP Airports
RRS Railroads

REC Recreation

CUL Cultural resources
ARC Archaeology
HIS Historic

SOC Socioeconomic and sociological

VIS Visual resources

ECN Economic

EIS Environmental Impact Statements, EA's or expanded PER's

MUL Multidisciplinary documents other than EIS's

NOTE: The following first-order descriptors can be used in conjunction with any other first-order subject codes:

PLC Policy

PLN Planning

LEG Legislation

REG Regulation

STA Statistics

SUP Supply of the resource

DEM Demand of the resource

FRC Forecasting

DEV Development

PRI Pricing

ENG Engineering

EDU Education

MAR Marketing

MTH Methods

CON Conservation

MNG Management

CLA Classification

APPENDIX A

PART 2. ALPHABETICAL LIST OF SUBJECT CODES

Order	Code	Key Word and Higher-order Subjects
3	ABU	Abundance (1.BIO)
1	AER	Aerial imagery
1	AGR	Agriculture
1	AIR	Air Quality
3	ALC	Alcohol fuels (1.ENE 2.BMS)
3	ALP	Alpine (1.BIO 2.COM)
3	AMP	Amphibians (1.BIO 2.FAU)
2	AQF	Aquifer (1.GRO)
1	AQU	Aquatic ecology
2	ARC	Archaeology (1.CUL)
3	ARH	Arachnids (1.BIO 2.FAU)
2	ARP	Airports (1.TRN)
3	ART	Other arthropods (1.BIO 2.FAU)
2	ASP	Aspect (1.TOP)
3	BAC	Bacteria (1.BIO 2.FLO)
3	BEH	Behavior (1.BIO)
2	BEN	Bentonite (1.MIN)
1	BIO	Biological resources (collective heading for AQU and TER)
3	BIR	Birds (1.BIO 2.FAU)
2	BMS	Biomass Energy (1.ENE)
3	CFP	Coal-fired power plants (1.ENE 2.THE)
3	CHE	Chemical (1.WAT 2.QUA)
2	CHM	Chemical characteristics (1.SOI)
1	CLA	Classification
2	CLY	Clay (1.MIN)
3	CMM	Commercial (1.ENE 2.ENC)
3	CNS	Consumptive (1.WAT 2.WUS)
2	COA	Coal (1.ENE)
3	COG	Cogeneration (1.ENE 2.THE)
4	COL	Color (1.WAT 2.QUA 3.PHY)
2	COM	Communities (1.BIO)
1	CON	Conservation
2	COP	Copper (1.MIN)
2	COU	County lines (1.LAN)
1	COV	Land cover (Similar to VEG and TER.COM but incl. land uses)
2	CRO	Crop production (1.AGR)
3	CRS	Crustaceans (1.BIO 2.FAU)
3	CRU	Crude oil (1.ENE 2.OIL)
1	CUL	Cultural resources
2	CUT	Open cut (1.MIN)
1	DEM	Demand of the resource
3	DES	Desert (1.BIO 2.COM)
1	DEV	Development
3	DIS	Distribution (1.BIO)
3	DIV	Diversity (1.BIO)
4	DOB	DO/BOD (1.WAT 2.QUA 3.CHE)
3	DRA	Drains (1.WAT 2.WUS)
1	ECN	Economic
2	ECO	Ecosystems (1.BIO)
1	EDU	Education
1	EIS	Environmental Impact Statements, EA's or expanded PER's
2	ELE	Electric power (collective term = THE.HYD.) (1.ENE)
2	ENC	Energy Conservation (1.ENE)
3	END	Endangered or threatened species (1.BIO)
1	ENE	Energy
1	ENG	Engineering
2	ERO	Erosion (1.SOI)
2	EVA	Evapotranspiration and evaporation (1.MET)
3	EVP	Evaporation (1.WAT 2.WUS)
2	EXC	Land exchanges (1.USE)
2	FAU	Fauna (1.BIO)
2	FEA	Unique features (1.GEO)
1	FIR	Fire
1	FIS	Fisheries (indicates fisheries studies="1.AQU.2.FAU.3.FSH")
2	FLD	Flooding (1.HAZ)
2	FLO	Flora (1.BIO)
4	FLW	Flowing wells (1.WAT 2.WUS 3.WEL)
3	FOO	Food habits (1.BIO)
2	FOR	Forestry (1.AGR)
1	FRC	Forecasting
2	FRM	Landforms (1.TOP)
3	FRS	Forest (1.BIO 2.COM)
3	FSH	Fishes (1.BIO 2.FAU)
3	FUN	Fungi (1.BIO 2.FLO)
2	GAS	Natural gas (1.ENE)
2	GCH	Geochemistry (1.GEO)
1	GEO	Geology (other than minerals)
3	GHP	Groundwater heat pumps (1.WAT 2.WUS)
2	GLA	Glacial (1.GEO)
2	GMO	Geomorphology (1.GEO)
2	GNS	Genesis (1.SOI)
2	GOL	Gold (1.MIN)
2	GRA	Grazing (1.AGR)
1	GRO	Groundwater
3	GRS	Grassland (1.BIO 2.COM)
2	GRV	Gravel (1.MIN)
2	GTH	Geothermal Energy (1.ENE)
3	HAB	Habitat (1.BIO)
3	HAR	Harvest (1.BIO)
1	HAZ	Hazards (Environmental hazards and/or constraints)
3	HCB	Hydrocarbon fuels from biomass (1.ENE 2.BMS)
1	HDR	Hydrology

1 HER Heritage
2 HIS Historic (1.CUL)
3 HUN Hunting (1.BIO)
2 HWY Highway (1.TRN)
2 HYD Hydroelectric (1.ENE)
3 IDS Industrial (1.ENE 2.ENC)
1 IMP Impact
3 IND Industrial (1.WAT 2.WUS)
3 INS Insects (1.BIO 2.FAU)
3 INT Inter-basin transfer (1.WAT 2.WUS)
3 INV Other intertebrates (Microinvertebrates, Macroinvertebrates) (1.BIO 2.FAU)
4 ION Common Ions (including pH and specific conduct.) (1.WAT 2.QUA 3.CHE)
3 IRR Irrigation (1.WAT 2.WUS)
3 ISF Instream flow (1.WAT 2.WUS)
3 IST Institutional (1.ENE 2.ENC)
3 LAC Lacustrine (1.BIO 2.COM)
1 LAN Land lines
2 LAT Latitude and longitude (1.LAN)
1 LEG Legislation
3 LIF Life history (1.BIO)
3 LIS Lists of species or communities (1.BIO)
3 LIV Livestock (1.WAT 2.WUS)
2 LSL Landslides and land movement (1.HAZ)
2 LVS Livestock (1.AGR)
3 MAC Macrophyton (1.BIO 2.FLO)
3 MAM Mammals (1.BIO 2.FAU)
3 MAN Management techniques (1.HER 2.TOO)
1 MAR Marketing
3 MEA Meadow (1.BIO)
1 MET Meteorology and climatology
3 MHD Magnetohydrodynamics (1.ENE 2.THE)
1 MIN Minerals (other than energy resources)
1 MIT Mitigation
1 MNG Management
3 MNI Mining (1.WAT 2.WUS)
3 MOL Molluscs (1.BIO 2.FAU)
3 MOR Mortality (1.BIO)
3 MOV Movements or migrations (1.BIO)
1 MTH Methods
4 MTL Metals (1.WAT 2.QUA 3.CHE)
1 MUL Multidisciplinary documents other than EIS's
3 NAT Nature preserves (1.USE 2.SPE)
2 NOI Noise (1.IMP)
3 NON Non-consumptive (1.WAT 2.WUS)
4 NUT Nutrients (1.WAT 2.QUA 3.CHE)
4 ODO Odor (1.WAT 2.QUA 3.PHY)
2 OIL Petroleum (1.ENE)
4 ORG Organics (1.WAT 2.QUA 3.CHE)
2 OWN Ownership (1.LAN)
1 PAL Paleontology
3 PAR Parks (1.USE 2.SPE)
3 PAT Pathology and disease (1.BIO)
3 PER Periphyton (1.BIO 2.FLO)
2 PES Pesticides (1.AGR)
2 PHC Physical characteristics (1.SOI)
2 PHO Photography (1.AER)
3 PHT Phytoplankton (1.BIO 2.FLO)
3 PHY Physical (1.WAT 2.QUA)
2 PIP Pipelines (1.ENE)
2 PLA Platinum (1.MIN)
1 PLN Planning
1 PLC Policy
2 PLS Public Land Survey (Township and Range) (1.LAN)
3 PLT Palustrine (1.BIO 2.COM)
2 POL Pollution (1.IMP)
3 POP Population ecology (1.BIO)
3 PPR Petroleum products (1.ENE 2.OIL)
2 PRE Precipitation (1.MET)
1 PRI Pricing
3 PRO Productivity (1.BIO)
3 PRT Protection organization (1.HER 2.TOO)
3 PUB Public Supply (municipal) (1.WAT 2.WUS)
2 QNT Quantity (streamflow) (1.WAT)
2 QUA Quality (1.WAT)
4 RAD Radioactivity (1.WAT 2.QUA 3.CHE)
3 RAI Rain (1.MET 2.PRE)
2 RCL Reclamation and revegetation (1.MIT)
1 REC Recreation
1 REG Regulation
2 REL Relief (1.TOP)
2 REN Renewable (collective term = "1.ENE.2.BMS.GTH.SOL.WIN.HYD.") (1.ENE)
3 REP Reproduction (1.BIO)
3 RES Residential (1.ENE 2.ENC)
3 RIV Riverine or riparian (1.BIO 2.COM)
3 RNA Research natural areas (1.USE 2.SPE)
2 ROW Rights-of-way (1.USE)
2 RRS Railroads (1.TRN)
3 RSE Reservoir evaporation (1.WAT 2.WUS)
3 RSV Reservations (1.WAT 2.WUS)
3 RUR Rural domestic (1.WAT 2.WUS)
4 RWR Reserved water rights (1.WAT 2.WUS 3.WRI)
2 SAN Sand (1.MIN)
2 SAT Satellite imagery (1.AER)
3 SAV Savannah (1.BIO 2.COM)
3 SBT Subterranean (1.BIO 2.COM)
2 SDM Sedimentology (1.GEO)
4 SED Sediment (1.WAT 2.QUA 3.PHY)
2 SEI Seismic risk (1.HAZ)
3 SHR Shrubland (1.BIO 2.COM)
2 SIL Silver (1.MIN)
2 SIT Siting studies (1.ENE)
2 SLO Slope (1.TOP)
3 SLU Coal slurry (1.ENE 2.COA)
3 SNO Snow (1.MET 2.PRE)
2 SNP Snowpack (1.MET)

1	SOC	Socioeconomic and sociological
1	SOI	Soils
2	SOL	Solar Energy (1.ENE)
2	SPE	Specially managed areas (1.USE)
3	SPR	Springs (1.WAT 2.WUS)
2	SRF	Surface (1.GEO)
2	SRV	Survey (1.SOI)
2	SSF	Subsurface (1.GEO)
3	SSH	Small-scale hydro (1.ENE 2.HYD)
3	SSS	Saline/sodic soils (1.SOI 2.CHM)
1	STA	Statistics
3	STM	Strip mining (1.ENE 2.COA)
2	SUB	Subdivision (1.USE)
2	SUN	Insolation (1.MET)
1	SUP	Supply of the resource
1	SUR	Surface water
3	SWS	Solid wastes (1.ENE 2.BMS)
3	SYN	Synfuels (1.ENE 2.COA)
3	TAX	Taxonomy (1.BIO)
3	TEC	Techniques (1.BIO)
2	TEM	Temperature (1.MET)
I	TER	Terrestrial ecology
2	THE	Thermoelectric power (1.ENE)
4	TMP	Temperature (1.WAT 2.QUA 3.PHY)
2	TOO	Protection tools (1.HER)
1	TOP	Topography
3	TOX	Toxins (1.BIO)
2	TRA	Transmission facilities (1.ENE)
1	TRN	Transportation
4	TUR	Turbidity (1.WAT 2.QUA 3.PHY)
2	URA	Uranium (1.MIN)
I	USE	Land use and management
2	UTM	Universal Transmercator (1.LAN)
3	VAS	Vascular (1.BIO 2.FLO)
I	VEG	Vegetation (indicates vegetation studies = "1.TER.2.COM")
3	VIR	Viruses (1.BIO 2.FLO)
1	VIS	Visual resources
3	WAS	Hazardous wastes (1.IMP 2.POL)
I	WAT	Water resources
3	WOF	Wood fuel (1.ENE 2.BMS)
2	WEE	Weeds (1.AGR)
3	WEL	Wells (1.WAT 2.WUS)
3	WET	Wetlands (1.BIO 2.COM)
1	WIL	Wildlife (wildlife studies = "1.TER.2.FAU.3.BIR.MAM.REP.")
2	WIN	Wind (1.MET)
3	WLD	Wilderness (1.USE 2.SPE)
2	WMO	Weather modification (1.MET)
2	WND	Wind Energy (1.ENE)
3	WRF	Wildlife refuges (1.USE 2.SPE)
3	WRI	Water rights (1.WAT 2.WUS)
3	WSR	Wild and scenic rivers (1.USE 2.SPE)
3	WTS	Watersheds (1.USE 2.SPE)
2	WUS	Water use (1.WAT)

APPENDIX B

PARTIAL NAME AUTHORITY LIST
for
STATE AND FEDERAL AGENCIES

Federal Energy Regulatory Commission, Office of Electric Power Regulation.
Federal Highway Administration, Office of Federal Highway Projects.
Federal Power Commission, Bureau of Power.
Interstate Commerce Commission, Office of Transportation Analysis, Section of Energy and Environment.
Missouri River Basin Commission.
Montana Dept. of Agriculture.
Montana Dept. of Fish and Game.
Montana Dept. of Fish and Game, Parks Division.
Montana Dept. of Fish, Wildlife, and Parks.
Montana Dept. of Health and Environmental Sciences.
Montana Dept. of Health and Environmental Sciences, Air Quality Bureau.
Montana Dept. of Health and Environmental Sciences, Environmental Sciences Division.
Montana Dept. of Health and Environmental Sciences, Solid Waste Management Bureau.
Montana Dept. of Health and Environmental Sciences, Subdivision Bureau.
Montana Dept. of Health and Environmental Sciences, Water Quality Bureau.
Montana Dept. of Highways.
Montana Dept. of Highways, Planning and Research Bureau.
Montana Dept. of Livestock, Brands Enforcement Division.
Montana Dept. of Natural Resources and Conservation.
Montana Dept. of Natural Resources and Conservation, Energy Division.
Montana Dept. of Natural Resources and Conservation, Forestry Division.
Montana Dept. of Natural Resources and Conservation, Water Resources Division.
Montana Dept. of State Lands.
Montana Power Company.
National Park Service.
National Park Service, Denver Service Center.
U.S. Army Engineer District, Omaha, Nebraska.
U.S. Army Engineer District, Seattle, Washington.
U.S. Army Engineer Division, Missouri River, Omaha, Nebraska.
U.S. Bureau of Indian Affairs, Billings Area Office.
U.S. Bureau of Indian Affairs, Planning Support Group.
U.S. Bureau of Land Management.
U.S. Bureau of Land Management, Billings District.

U.S. Bureau of Land Management, Butte District.
U.S. Bureau of Land Management, Dillon District.
U.S. Bureau of Land Management, Lewistown District.
U.S. Bureau of Land Management, Miles City District.
U.S. Bureau of Land Management, Missoula District.
U.S. Bureau of Land Management, Montana State Office.
U.S. Bureau of Land Management, Oregon State Office.
U.S. Bureau of Reclamation.
U.S. Dept. of Energy, Bonneville Power Administration.
U.S. Dept. of Energy, Western Area Power Administration.
U.S. Dept. of Health, Education, and Welfare, Region VIII.
U.S. Dept. of Transportation.
U.S. Environmental Protection Agency, Montana Office.
U.S. Federal Power Commission, Bureau of Natural Gas.
U.S. Fish and Wildlife Service.
U.S. Forest Service.
U.S. Forest Service, Beaverhead National Forest.
U.S. Forest Service, Bitterroot National Forest.
U.S. Forest Service, Custer National Forest.
U.S. Forest Service, Deerlodge National Forest.
U.S. Forest Service, Flathead National Forest.
U.S. Forest Service, Gallatin National Forest.
U.S. Forest Service, Helena National Forest.
U.S. Forest Service, Intermountain Region.
U.S. Forest Service, Kaniksu National Forest.
U.S. Forest Service, Kootenai National Forest.
U.S. Forest Service, Lewis and Clark National Forest.
U.S. Forest Service, Lolo National Forest.
U.S. Forest Service, Northern Region.
U.S. Forest Service, Shoshone National Forest.
U.S. Forest Service, Targhee National Forest.
U.S. Geological Survey.
U.S. Geological Survey, Water Resources Division.
U.S. Office of Surface Mining, Reclamation, and Enforcement.
U.S. Soil Conservation Service.

APPENDIX C

FORM FOR MANUAL ENTRY OF RECORDS

CODE NO.: WORKING_____ FINAL (6)_____

AUTHOR (100)_____

_____

DATE (4)_____TITLE (254)_____

_____

_____

CITATION (254)_____

_____

_____

AUTH AFFIL (65)_____

SUBJECT CODES: FIRST (27)_____THIRD (27)_____

SECOND (27)_____FOURTH (27)_____

KEYWORDS (254)_____

_____

_____

ADDITIONAL KEYWORDS OR SPECIES LISTS (254)_____

_____

_____

TYPE (3)_____SHELFNOTE (35)_____

STATES (23)_____COUNTIES (75)_____

_____

DFWP DISTRICTS (6)_____BASINS (35)_____

LATITUDE: SOUTH (4)____NORTH (4)____LONGITUDE: EAST (5)____WEST (5)____

COVERAGE DATES (13)_____ENTRY DATE (MM/DD/YY)_____ENTERED BY (3)____

ABSTRACT (508)_____

_____

_____

_____

_____

_____

_____

_____

_____

APPENDIX D

EXAMPLES OF COMPLETED ENTRIES

CODE NO.: WORKING _____ FINAL (6) 3008

AUTHOR (100) Potts, Donald F.

DATE (4) 1983 TITLE (254) Watershed management in western Montana.

CITATION (254) Pages 222-237 In J. O'Loughlin and R.D. Pfister (eds.), Management of second-growth forests: the state of knowledge and research needs. Proc. of a symposium. Missoula: U.M. School of Forestry.

AUTH AFFIL (65) U. of M. School of Forestry.

SUBJECT CODES: FIRST (27) HYD.WAT.AGR.IMP.MET. THIRD (27) CHE.PHY.SNO.

SECOND (27) USE.QUA.QNT.FOR.PRE. FOURTH (27) SED.TMP.NUT.

KEYWORDS (254) vegetative-hydrologic recovery.sediment yield.water yield model.watershed modeling.

ADDITIONAL KEYWORDS OR SPECIES LISTS (254) _____

TYPE (3) DOC SHELFNOTE (35) MSL R 050EBS

STATES (23) MT COUNTIES (75) NOWE.SOWE.CASC.MEAG.PARK.

DFWP DISTRICTS (6) 1234 BASINS (35) O.P.R.Q.A.B.C.

LATITUDE: SOUTH (4) 4423 NORTH (4) 4900 LONGITUDE: EAST (5) 11000 WEST (5) 11603

COVERAGE DATES (13) _____ ENTRY DATE (MM/DD/YY) _____ ENTERED BY (3) ____

ABSTRACT (508) _____

APPENDIX D

EXAMPLES OF COMPLETED ENTRIES (continued)

CODE NO.: WORKING _____ FINAL (6) 3008

AUTHOR (100) Inkley, D.B., R.P. Lanka, and S.H. Anderson.

DATE (4) 1983 TITLE (254) Montana land cover map (unpublished; base = USGS; scale = 1:500,000).

CITATION (254) Laramie, WY: Wyoming Cooperative Fish and Wildlife Research Unit. Contact: D.B. Inkley, WCFWRU, University of Wyoming, Box 3166, University Station, Laramie, WY 82071.

AUTH AFFIL (65) Wyoming Cooperative Fish and Wildlife Research Unit.

SUBJECT CODES: FIRST (27) COV.VEG. THIRD (27) _____

SECOND (27) COM. FOURTH (27) _____

KEYWORDS (254) _____

ADDITIONAL KEYWORDS OR SPECIES LISTS (254) _____

TYPE (3) MAP SHELFNOTE (35) MSL (NRIS 3008)

STATES (23) MT COUNTIES (75) STAT.

DFWP DISTRICTS (6) 9 BASINS (35) STAT.

LATITUDE: SOUTH (4) 4423 NORTH (4) 4900 LONGITUDE: EAST (5) 10400 WEST (5) 11603

COVERAGE DATES (13) _____ ENTRY DATE (MM/DD/YY) 09/12/86 ENTERED BY (3) DF

ABSTRACT (508) (1) Alpine (2 categories), (2) cropland (2 categories), (3) sand dunes/bare ground-exposed rock (2 categories), (4) wetlands and deep water (3 categories), (5) disturbed areas (4 categ.), (6) rangeland (14 categ.), (7) woodland (3 categories), (8) forest (8 categories).

APPENDIX D

EXAMPLES OF COMPLETED ENTRIES (continued)

CODE NO.: WORKING PENNO 2 FINAL (6) 4356

AUTHOR (100) U.S. Bureau of Indian Affairs, Land and Minerals Division.

DATE (4) 1986 TITLE (254) Collection of 250 titles on land and mineral issues on Indian lands in Montana.

CITATION (254) Billings: U.S. Bureau of Indian Affairs. Contact Rick Stefanic, 4030 Federal Bldg., Billings 59101, 657-6325.

AUTH AFFIL (65)

SUBJECT CODES: FIRST (27) USE.MIN.GEO.ENE.AIR.SOI. THIRD (27)

SECOND (27) FOURTH (27)

KEYWORDS (254) Land management.soil classification.

ADDITIONAL KEYWORDS OR SPECIES LISTS (254)

TYPE (3) COL. SHELFNOTE (35) BIA Library, Billings.

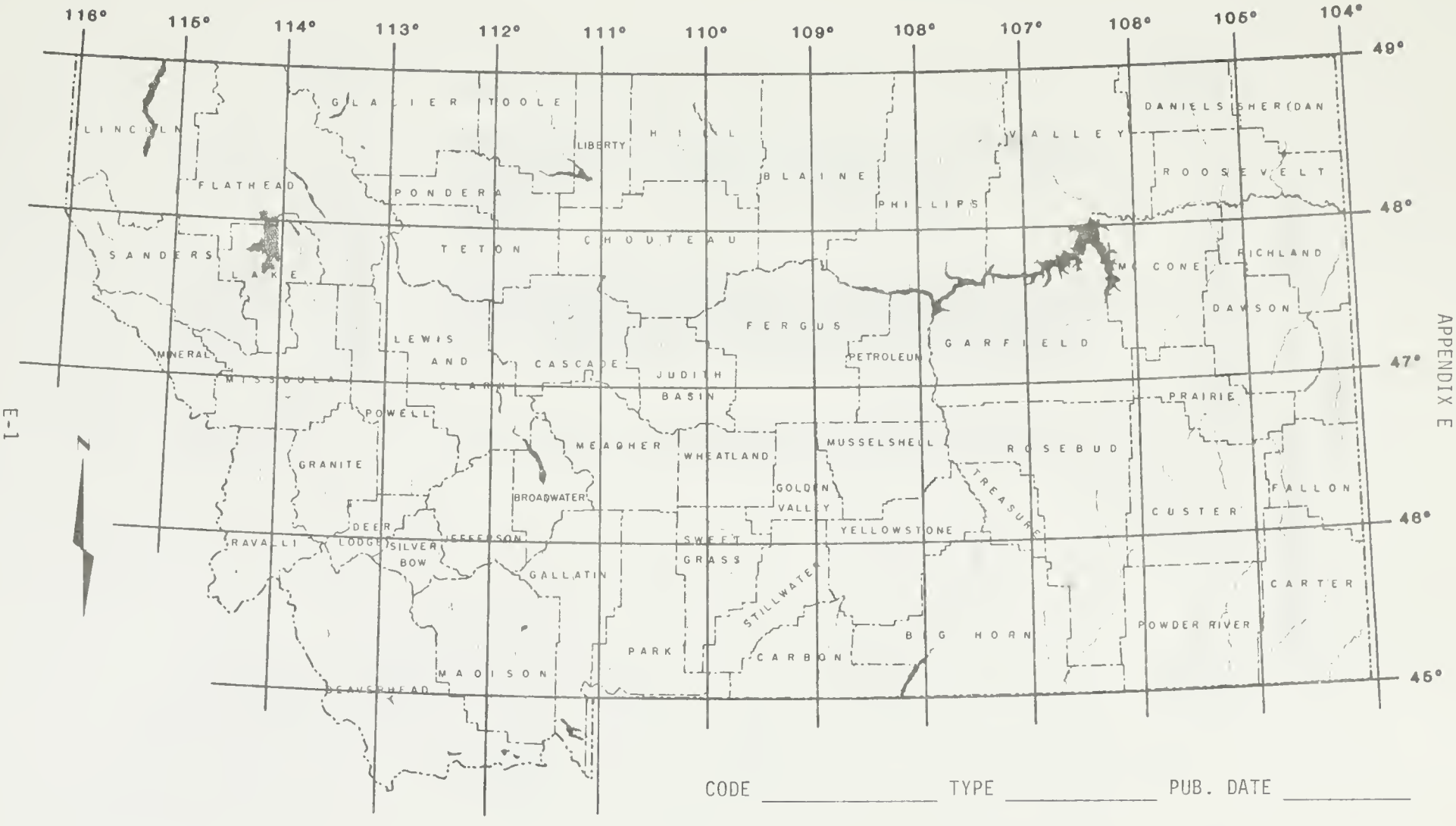
STATES (23) MT. COUNTIES (75) GLAC.POND.BIGH.YELL. BLAI.PHIL.SHER.DANI.VALL.ROOS.ROSE.HILL.CHOU.

DFWP DISTRICTS (6) 4567 BASINS (35)

LATITUDE: SOUTH (4) 4500 NORTH (4) 4900 LONGITUDE: EAST (5) 10425 WEST (5) 11340

COVERAGE DATES (13) ENTRY DATE (MM/DD/YY) 10/08/86 ENTERED BY (3) SLF

ABSTRACT (508)



E-1

CODE _____ TYPE _____ PUB. DATE _____

AUTHOR _____

APPENDIX F

RECOMMENDED dBASE III PLUS FILE STRUCTURE

Structure for database: MASTER.DBF
Indexed on CODE to MASTCODE and on SUBSTR(AUTH.1,75)+DATE to MASTNAME

Field	Field Name	Type	Width	Dec
1	CODE	Numeric	6	
2	AUTHOR	Character	100	
3	MONTHDAY	Character	20	
4	DATE	Character	4	
5	TITLE	Character	254	
6	CITE	Character	254	
7	AUTH_AFFIL	Character	65	
8	KEYWORDS	Character	254	
9	SUBJECTS	Character	254	
10	SUBCODE1	Character	27	
11	SUBCODE2	Character	27	
12	SUBCODE3	Character	27	
13	SUBCODE4	Character	27	
14	TYPE	Character	3	
15	SHELFNOTE	Character	35	
16	STATES	Character	23	
17	COUNTIES	Character	75	
18	DFWPDIS	Character	6	
19	BASIN	Character	35	
20	S_LAT	Character	4	
21	N_LAT	Character	4	
22	E_LON	Character	5	
23	W_LON	Character	5	
24	COVDATE	Character	13	
25	ENTERDATE	Date	8	
26	ENTERED_BY	Character	3	
27	REVIS_DATE	Date	8	
28	REVIS_BY	Character	3	

Structure for database: ABST.DBF
Indexed on CODE to ABSTCODE

Field	Field Name	Type	Width
1	CODE	Numeric	6
2	ABST1	Character	254
3	ABST2	Character	254

Structure for database: ABST2.DBF
Indexed on CODE to ABST2CODE

Field	Field Name	Type	Width
1	CODE	Numeric	6
2	ABST3	Character	254
3	ABST4	Character	254
4	ABST5	Character	254

Structure for database: ENV.DBF
Indexed on CODE to ENVCODE

Field	Field Name	Type	Width
1	CODE	Numeric	6
2	STATUTE	Character	45
3	PROJ_TYPE	Character	20
4	PROPOSER	Character	50
5	PER_DATE	Character	5
6	DRAFT_DATE	Character	5
7	FINAL_DATE	Character	5

Structure for database: FISH.DBF
Indexed on CODE to FISHCODE

Field	Field Name	Type	Width
1	CODE	Numeric	6
2	WATR	Character	254

Structure for database: AUT.DBF
Indexed on CODE to AUTCODE

Field	Field Name	Type	Width
1	CODE	Character	6
2	ACRONYM	Character	20
3	PURPOSE	Character	55
4	STRUCTURE	Character	2
5	CONTACT	Character	75
6	STATUS	Character	1
7	AVAIL	Character	1
8	ONLINE	Logical	1
9	INTERACT	Logical	1
10	PC_ACCESS	Logical	1
11	END_USER	Logical	1

(continued)

(continued from AUT.DBF)

12	DATA_BASE	Logical	1
13	OUTPUT	Character	3
14	STORAGE	Character	3
15	MEGABYTES	Character	6
16	HARDWARE	Character	40
17	LOCATION	Character	55
18	OPER_SYST	Character	20
19	LANGUAGE	Character	35
20	DBMS	Character	20
21	DOCUM	Character	6
22	OTHERS	Character	35
23	IMP_YR	Character	2
24	LAST_MOD	Character	4
25	IN_FREQ	Character	1
26	OUT_FREQ	Character	1
27	SOURCES	Character	254
28	USERS	Character	45
29	WILL_SHARE	Logical	1
30	CONDITION	Character	60
31	TRANSFER	Character	60
32	SUPPORT	Character	40
33	MIN_MEM	Character	6
34	CAPACITY	Character	50
35	NO_USERS	Character	2
36	FED_REPOS	Character	25
37	COMMENTS	Character	254

ADDITIONAL FIELDS USED ONLY FOR DIGITAL DATA FILES

38	SOFTWARE	Character	35
39	COORD	Character	30
40	SPATIAL	Character	4
41	AGGREG	Character	4
42	PERIPH	Character	75
43	OUT_PROD	Character	55
44	OVERLAY	Logical	1
45	LAYERS	Character	254

APPENDIX G

ABBREVIATIONS OF STATUTES COMMONLY REFERENCED IN ENVIRONMENTAL DOCUMENTS

CAA	Clean Air Act
ESA	Endangered Species Act
FLPMA	Federal Land Policy and Management Act
FWPCA	Federal Water Pollution Control Act
FWCA	Fish and Wildlife Coordination Act
FRRRPA	Forest and Rangeland Renewable Resources Planning Act
MLA	Mineral Leasing Act of 1920
MAPA	Montana Administrative Procedures Act
MAA	Montana Antiquities Act
MCAA	Montana Clean Air Act
MEPA	Montana Environmental Policy Act
MHRL	Montana Hard Rock Law
MFSA	Montana Major Facility Siting Act
MMMRA	Montana Metal Mine Reclamation Act
MSISA	Montana Sanitation in Subdivisions Act of 1947
MSUMRA	Montana Strip and Underground Mine Reclamation Act
MUSA	Montana Utility Siting Act
MWQA	Montana Water Quality Act
MWSP	Montana Water Supply Act of 1947
MWUA	Montana Water Use Act of 1973
MWSTA	Montana Wilderness Study Act
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
OWA	Omnibus Wilderness Act of 1976
OCMRA	Open Cuty Mining and Reclamation Act
PURPA	Public Utilities Regulatory Policies Act of 1978
SMCRA	Surface Mining Control and Reclamation Act
WQA	Water Quality Act
WSRA	Wild and Scenic Rivers Act
WA	Wilderness Act of 1964

300 copies of this public document were published at an estimated cost of $2.17 per copy, for a total cost of $650.00, which includes $650.00 for printing and $.00 for distribution.